

What is claimed is:

1. A water soluble thermosetting polyester resin composition prepared from about 100 parts by weight of thermosetting polyester resin obtained by
5 condensing polyethylene terephthalate using glycol and polybasic acid, about 5-20 parts by weight of anhydrous polybasic acid and amine.

2. The water soluble thermosetting polyester resin composition of claim 1, wherein polyethylene terephthalate is synthesized by using terephthalic acid and
10 ethylene glycol, a mixing ratio of terephthalic acid and ethylene glycol being about 1.0 : 1.0-1.4 by equivalent.

3. The water soluble thermosetting polyester resin composition of claim 1, wherein the thermosetting polyester resin has an acid value of about 20-30, a
15 hydroxyl value of about 50-120 and a molecular weight of about 8,000-20,000.

4. The water soluble thermosetting polyester resin composition of claim 1, wherein the thermosetting polyester resin composition has an acid value of about 60-80, a hydroxyl value of about 50-120, pH of about 7-9 and a water diluting
20 property of about at least 300%.

5. A method of preparing a water soluble thermosetting polyester resin composition comprising:

preparing a polyester resin by adding glycol and polybasic acid into
25 polyethylene terephthalate and condensing a resultant mixture;

adding 5-20 parts by weight of anhydrous polybasic acid into 100 parts by

weight of thus prepared polyester resin to carry out a ring opening addition or condensation polymerization reaction; and

adding amine for neutralization until pH of thus prepared product through the ring opening addition or condensation polymerization reaction becomes about 7-9.

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6. The method of preparing a water soluble thermosetting polyester resin composition of claim 5, wherein the polyester resin is prepared by using glycol and polybasic acid with a mixing ratio of 1.0 : 1.0-1.1 by equivalent and has an acid value of about 20-30, a hydroxyl value of about 50-120 and a molecular weight of about 8,000-20,000.

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7. The method of preparing a water soluble thermosetting polyester resin composition of claim 5, wherein glycol is at least one selected from the group consisting of ethylene glycol, propylene glycol, 1,4-butylene glycol, 1,6-hexanediol, neopentyl glycol, methylpropanediol, cyclohexane dimethanol, hydrogenated bisphenol A, ethylene oxide added bisphenol A, propylene oxide added bisphenol A, ethylene oxide added bisphenol F, propylene oxide added bisphenol F, ethylene oxide added bisphenol S and propylene oxide added bisphenol S.

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8. The method of preparing a water soluble thermosetting polyester resin composition of claim 5, wherein polybasic acid is at least one selected from the group consisting of anhydrous phthalic acid, anhydrous tetrahydrophthalic acid, isophthalic acid, terephthalic acid, adipic acid, azelaic acid, sebacic acid, cyclohexane diacid and trimellitic anhydride.

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9. The method of preparing a water soluble thermosetting polyester resin

composition of claim 5, wherein anhydrous polybasic acid is at least one selected from the group consisting of anhydrous maleic acid, anhydrous phthalic acid, anhydrous tetrahydrophthalic acid and trimellitic anhydride.

5 10. The method of preparing a water soluble thermosetting polyester resin composition of claim 5, wherein amine is at least one selected from the group consisting of ethylene diamine, dimethyl ethanolamine, triethylamine, diethanolamine, triethanolamine, monoethanolamine, diethylethanolamine, diethylene diamine, monoethylamine, dipropyl ethanolamine, diethyl cyclohexylamine, diethylene triamine, 10 dioctylamine and dioctyl aminoethanol.

 11. The method of preparing a water soluble thermosetting polyester resin composition of claim 5, further comprising adding deionized water for preparing a water soluble thermosetting polyester resin composition having a solid content of 15 about 50-60% after adding the amine.

 12. The method of preparing a water soluble thermosetting polyester resin composition of claim 11, wherein the thus prepared water soluble thermosetting polyester resin composition has an acid value of about 60-80, a hydroxyl value of 20 about 50-120, pH of about 7-9 and a water diluting property of about at least 300%.